

**MAY 2015 PRELIMINARY DRAFT FOR DISCUSSION
PROPOSED PYRETHROID BASIN PLAN AMENDMENT
LANGUAGE – MARKUP VERSION**

Note: Text additions to the Basin Plan text are noted by being underlined. Additions since the October 2014 draft are noted by double underline and deletions are marked as strikeout.

Changes to Chapter III, Water Quality Objectives TABLE III-2A

Add the following to Table III-2A as follows (p. III-6.01):

TABLE III-2A
SPECIFIC PESTICIDE OBJECTIVES

<u>PESTICIDE MAXIMUM CONCENTRATION AND AVERAGING PERIOD</u>
<u><i>Pyrethroid Pesticides (including all stereoisomers) – Water column concentrations</i></u>
<p><u>The acute additive pyrethroid pesticides water quality objective is equal to one (1) acute additive criteria-normalized concentration unit (CNCU) not to be exceeded more than once in a three year period. The acute additive CNCUs are calculated as the sum of individual pyrethroid concentration-to-acute criterion ratios, as defined in the following formula. Freely dissolved pyrethroid concentrations may be used in the numerator of each ratio if appropriate data are available, as described in the equation to calculate freely dissolved concentrations given below.</u></p> $CNCU_{acute} = \frac{C_{bif}}{AC_{bif}} + \frac{C_{cyf}}{AC_{cyf}} + \frac{C_{cyp}}{AC_{cyp}} + \frac{C_{esf}}{AC_{esf}} + \frac{C_{lcy}}{AC_{lcy}} + \frac{C_{per}}{AC_{per}}$ <p><u>Where:</u></p> <p><u>C_{bif} = Average concentration of bifenthrin in ng/L from a 1-hour averaging period.</u></p> <p><u>C_{cyf} = Average concentration of cyfluthrin in ng/L from a 1-hour averaging period.</u></p> <p><u>C_{cyp} = Average concentration of cypermethrin in ng/L from a 1-hour averaging period.</u></p> <p><u>C_{esf} = Average concentration of esfenvalerate in ng/L from a 1-hour averaging period.</u></p> <p><u>C_{lcy} = Average concentration of lambda-cyhalothrin in ng/L from a 1-hour averaging period.</u></p> <p><u>C_{per} = Average concentration of permethrin in ng/L from a 1-hour averaging period.</u></p> <p><u>AC_{bif} = Bifenthrin acute criterion of 0.06 ng/L.</u></p> <p><u>AC_{cyf} = Cyfluthrin acute criterion of 0.2 ng/L.</u></p> <p><u>AC_{cyp} = Cypermethrin acute criterion of 0.04 ng/L.</u></p> <p><u>AC_{esf} = Esfenvalerate acute criterion of 0.2 ng/L.</u></p> <p><u>AC_{lcy} = Lambda-cyhalothrin acute criterion of 0.03 ng/L.</u></p> <p><u>AC_{per} = Permethrin acute criterion of 6 ng/L.</u></p> <p><u>$CNCU_{acute}$ = The sum of acute pyrethroid concentration-to-criterion ratios, rounded to one significant figure. A CNCU exceeding one (1) indicates an exceedance of the acute additive pyrethroid pesticides water quality objective.</u></p>

The chronic additive pyrethroid pesticides water quality objective is equal to one (1) chronic additive criteria-normalized concentration unit not to be exceeded more than once in a three year period. The chronic additive CNCUs are calculated as the sum of individual pyrethroid concentration-to-chronic criterion ratios, as defined in the following formula. Freely dissolved pyrethroid concentrations may be used in the numerator of each ratio if appropriate data are available, as described in the equation to calculate freely dissolved concentrations given below.

$$CNCU_{chronic} = \frac{C_{bif}}{CC_{bif}} + \frac{C_{cyf}}{CC_{cyf}} + \frac{C_{cyp}}{CC_{cyp}} + \frac{C_{esf}}{CC_{esf}} + \frac{C_{lcy}}{CC_{lcy}} + \frac{C_{per}}{CC_{per}}$$

Where:

C_{bif} = Average concentration of bifenthrin in ng/L from a 4-day averaging period.

C_{cyf} = Average concentration of cyfluthrin in ng/L from a 4-day averaging period.

C_{cyp} = Average concentration of cypermethrin in ng/L from a 4-day averaging period.

C_{esf} = Average concentration of esfenvalerate in ng/L from a 4-day averaging period.

C_{lcy} = Average concentration of lambda-cyhalothrin in ng/L from a 4-day averaging period.

C_{per} = Average concentration of permethrin in ng/L from a 4-day averaging period.

CC_{bif} = Bifenthrin chronic criterion of 0.01 ng/L.

CC_{cyf} = Cyfluthrin chronic criterion of 0.04 ng/L.

CC_{cyp} = Cypermethrin chronic criterion of 0.01 ng/L.

CC_{esf} = Esfenvalerate chronic criterion of 0.03 ng/L.

CC_{lcy} = Lambda-cyhalothrin chronic criterion of 0.01 ng/L.

CC_{per} = Permethrin chronic criterion of 1 ng/L.

$CNCU_{chronic}$ = The sum of pyrethroid concentration-to-chronic criterion ratios, rounded to one significant figure. A CNCU exceeding one (1) indicates an exceedance of the chronic additive pyrethroid pesticides water quality objective.

For both the acute and chronic additive CNCUs, available samples collected within the applicable averaging period for the water quality objective will be used to determine attainment of the objectives. Concentrations of pyrethroid pesticides must be above reporting limits (limits of quantitation) to be included; concentrations reported as not-detected or as below the limit of quantitation will be considered as zero (0) in the above formulas.

The freely dissolved concentration of each quantified pyrethroid pesticide in a sample may be calculated using partition coefficients. The freely dissolved concentrations can then be used in the above formulas to determine the sum of acute and chronic additive CNCUs. To calculate the freely dissolved concentration of a pyrethroid pesticide, the following equation may be used:

$$C_{dissolved} = \frac{C_{total}}{1 + (K_{OC} \times [POC]) + (K_{DOC} \times [DOC])}$$

Where:

$C_{dissolved}$ = concentration of a an individual pyrethroid pesticide that is in the freely dissolved phase (ng/L).

C_{total} = total concentration of an individual pyrethroid pesticide in water (ng/L).

K_{OC} = organic carbon-water partition coefficient for the individual pyrethroid pesticide (L/kg).

[POC] = concentration of particulate organic carbon in the water sample (kg/L).

K_{DOC} = dissolved organic carbon-water partition coefficient (L/kg).

[DOC] = concentration of dissolved organic carbon in the sample (kg/L).

Site-specific partition coefficients approved by the Regional Water Board may be used in the above equation. If site-specific partition coefficients are not available or have not been approved, the following partition coefficients shall be used in the above calculation:

<u>Pyrethroid Pesticide</u>	<u>Ambient Waters</u>	
	<u>K_{OC}</u>	<u>K_{DOC}</u>
<u>Bifenthrin</u>	<u>1,032,000</u>	<u>1,203,323</u>
<u>Cyfluthrin</u>	<u>2,762,000</u>	<u>3,890,000</u>
<u>Cypermethrin</u>	<u>1,962,471</u>	<u>1,152,816</u>
<u>Esfenvalerate</u>	<u>2,136,235</u>	<u>11,068,000</u>
<u>Lambda-cyhalothrin</u>	<u>1,887,909</u>	<u>1,320,000</u>
<u>Permethrin</u>	<u>1,550,176</u>	<u>1,215,000</u>

APPLICABLE WATER BODIES

Waters with designated or existing¹ WARM and/or COLD beneficial uses

Water bodies with a specific program of implementation:

Water bodies receiving urban runoff discharges

Arcade Creek, Chicken Ranch Slough, Curry Creek (Placer and Sutter Counties), Elder Creek, Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County), Morrison Creek, Pleasant Grove Creek (upstream of Fiddymont Road), Pleasant Grove Creek South Branch, Strong Ranch Slough

Water bodies receiving agricultural discharges

Del Puerto Creek, Hospital Creek (San Joaquin and Stanislaus Counties), Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing), Ingram Creek (from confluence with San Joaquin River to confluence with Hospital Creek), Mustang Creek (Merced County)

¹ Existing as defined in Title 40 of the Code of Federal Regulations, section 131.3(e)

PESTICIDE	MAXIMUM CONCENTRATION AND AVERAGING PERIOD	APPLICABLE WATER BODIES
<i>-Pyrethroid Pesticides (including all stereoisomers) – Aqueous concentrations</i>		
Bifenthrin	4 ng/L; 1-hour average (acute) 0.6 ng/L; 4-day average (chronic) Not to be exceeded more than once in a three year period.	Waters with designated or existing² WARM and/or COLD beneficial uses Arcade Creek, Chicken Ranch Slough, Curry Creek (Placer and Sutter Counties), Del Puerto Creek, Elder Creek, Hospital Creek (San Joaquin and Stanislaus Counties), Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing), Ingram Creek (from confluence with San Joaquin River to confluence with Hospital Creek), Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County), Morrison Creek, Mustang Creek (Merced County), Pleasant Grove Creek, Pleasant Grove Creek South Branch, Strong Ranch Slough.
Cyfluthrin	0.3 ng/L; 1-hour average (acute) 0.05 ng/L; 4-day average (chronic) Not to be exceeded more than once in a three year period.	
Lambda-Cyhalothrin	1 ng/L; 1-hour average (acute) 0.5 ng/L; 4-day average (chronic) Not to be exceeded more than once in a three year period.	
Cypermethrin	1 ng/L; 1-hour average (acute) 0.2 ng/L; 4-day average (chronic) Not to be exceeded more than once in a three year period.	
Esfenvalerate	20 ng/L; 1-hour average (acute) 3 ng/L; 4-day average (chronic) Not to be exceeded more than once in a three year period.	
Permethrin	10 ng/L; 1-hour average (acute) 2 ng/L; 4-day average (chronic) Not to be exceeded more than once in a three year period.	
<p>When there is more than one pyrethroid pesticide in samples from the applicable averaging period (acute or chronic), the pyrethroid pesticides water quality objectives are defined as:</p> $S = \frac{C_{btf}}{\theta_{btf}} + \frac{C_{eyf}}{\theta_{eyf}} + \frac{C_{eyp}}{\theta_{eyp}} + \frac{C_{esf}}{\theta_{esf}} + \frac{C_{tey}}{\theta_{tey}} + \frac{C_{per}}{\theta_{per}} \leq 1$		

² Existing as defined in Title 40 of the Code of Federal Regulations, section 131.3(e)

Where:

C_{bif} = The concentration of bifenthrin in ng/L,

C_{cyf} = The concentration of cyfluthrin in ng/L,

C_{cyp} = The concentration of cypermethrin in ng/L,

C_{esf} = The concentration of esfenvalerate in ng/L,

C_{ley} = The concentration of lambda-cyhalothrin in ng/L,

C_{per} = The concentration of permethrin in ng/L,

O_{bif} = The acute or chronic bifenthrin water quality objective in ng/L,

O_{cyf} = The acute or chronic cyfluthrin water quality objective in ng/L,

O_{cyp} = The acute or chronic cypermethrin water quality objective in ng/L,

O_{esf} = The acute or chronic esfenvalerate water quality objective in ng/L,

O_{ley} = The acute or chronic lambda-cyhalothrin water quality objective in ng/L,

O_{per} = The acute or chronic permethrin water quality objective in ng/L,

S = The sum. A sum exceeding one (1.0) indicates an exceedance of the pyrethroid pesticides water quality objectives.

Available samples collected within the applicable averaging period for the water quality objective will be used to determine attainment of the objectives. Concentrations of pyrethroid pesticides must be above limits of quantitation (reporting limits) to be included; concentrations reported as not detected or as below the limit of quantitation will be considered as zero (0) in the above equation.

Changes to Chapter IV, Implementation

Under “Regional Water Board Prohibitions” (p. IV-23.00-26.01)

Add the following:

X. Pyrethroid Pesticides Discharges

A discharger is prohibited from discharging pyrethroid pesticides at concentrations that exceed water quality objectives to water bodies identified in Table III-2A unless that discharge is regulated under individual or general waste discharge requirements, a conditional waiver of waste discharge requirements, a national pollutant discharge elimination system (NPDES) permit, or other Regional Water Board order.

Under “**Recommended for Implementation by Other Agencies**” (p. IV-29.01-30.00)

Add the following:

California Department of Pesticide Regulation

Like the Regional Water Board, DPR is part of the California Environmental Protection Agency. It regulates pesticide product sales and use within California pursuant to the California Food and Agricultural Code. When DPR evaluates whether to register a pesticide product, one consideration is it must consider the potential for environmental damage, including interference with attainment of water quality standards. DPR is mandated to protect water quality from environmentally harmful pesticide materials and should implement mitigation measures when exceedances-violations of water quality standards caused by pesticides are identified, which may include canceling registration. DPR should also recognize pesticides used such that their use or runoff poses a reasonable potential to exceed violate water quality standards and take action to prevent foreseeable risks. Whenever DPR obtains information concerning actual or potential water quality standard exceedances violations, DPR should initiate a review in order to implement appropriate protective actions.

To be effective, this strategy relies on DPR to use its authorities in concert with the Regional Board. Consistent with its authorities, DPR should implement or continue to implement the following actions:

- 1) Work with the Regional Water Board to identify pesticides applied in such a manner that runoff does or could cause or contribute to water quality standard exceedances-violations;
- 2) Condition registrations, as appropriate, to require registrants to provide information necessary to determine the potential for their products to cause or contribute to water quality standard exceedances-violations and to implement actions necessary to prevent exceedances-violations;
- 3) Continue and enhance efforts to evaluate the potential for registered pesticide products to cause or contribute to water quality standard exceedances violations (DPR need not wait for the Regional Board to evaluate potential water quality effects), including completing studies to address identified data gaps;
- 4) Implement actions to minimize pesticide-related water quality standard exceedances-violations caused by registered pesticides;
- 5) Implement actions to prevent potential pesticide-related water quality standard exceedances-violations before they occur;

- 6) Notify USEPA of potential deficiencies in product labels for products that threaten water quality; and
- 7) Continue and enhance education and outreach programs to encourage integrated pest management and less toxic pest control (work with County Agricultural Commissioners, urban runoff management agencies, and the University of California Statewide Integrated Pest Management Program to coordinate activities).
- 8) ~~Continue and enhance efforts to prevent the introduction of new exotic pests to the Region; and~~
- 9) ~~Complete studies to address critical data needs.~~

U. S. Environmental Protection Agency

USEPA is responsible for implementing the Federal Insecticide, Fungicide, and Rodenticide Act and the Clean Water Act. USEPA is therefore responsible for ensuring that both federal pesticide laws and water quality laws are implemented. USEPA should exercise its authorities to ensure that foreseeable pesticide applications do not cause or contribute to water column or sediment toxicity in the Region's waters. Because some pesticides pose water quality risks, USEPA should implement the following actions:

- 1) Continue internal coordination efforts to ensure that pesticide applications and resulting discharges comply with water quality standards and avoid water quality impairments (i.e., restrict uses or application practices to manage risks), including discharges from wastewater treatment plants and urban runoff;
- 2) Continue and enhance education and outreach programs to encourage integrated pest management and less toxic pest control; and
- 3) Complete studies to address critical data needs.

Under “**Pesticide Discharges Pesticide Discharges from Nonpoint Sources**” (p. IV-33.31):

Make the following revisions:

Pesticide Discharges Pesticide Discharges from Nonpoint Sources “Pesticide Discharges”

Central Valley Regional Water Quality Control Board Actions

The Regional Water Board will implement the following actions related to programs regulating pesticide discharges:

- 1) Track USEPA and DPR pesticide evaluation and registration activities as they relate to water quality and share monitoring and research data with USEPA and DPR;
- 2) When necessary, request that USEPA coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the Clean Water Act;
- 3) Encourage USEPA and DPR to fully address water quality concerns within their pesticide registration processes, including urban runoff and wastewater discharges;
- 4) Work with DPR, County Agricultural Commissioners, and the Structural Pest Control Board to ensure that pesticide applications result in discharges that comply with water quality standards;
- 5) Interpret water quality standards for DPR and assemble available information (such as monitoring data) to assist DPR in taking actions necessary to protect water quality; and
- 6) Use authorities (e.g., through permits or waste discharge requirements) to require implementation of best management practices and control measures to minimize pesticide discharges to surface waters.

Add the following subheading and text:

Pyrethroid Pesticides Discharges

1. Regional Water Board orders that address the control of discharges of pyrethroid pesticides shall include provisions that:
 - a. Ensure attainment of the pyrethroid pesticides water quality objectives in water bodies identified in Table III-2A and total maximum daily load allocations in water bodies identified in Table X;
 - b. Ensure measures that are implemented to reduce pyrethroid pesticides discharges do not lead to an increase in the discharge of other pesticides at concentrations that cause or contribute to exceedances of applicable water quality objectives.
2. The Regional Water Board shall take actions that support attainment of the pyrethroid pesticides water quality objectives and encourage actions by other agencies that support attainment of the pyrethroid pesticides water quality objectives, as specified in the Basin Plan under the heading Pesticide Discharges (IV-33.12-36).

3. Dischargers are responsible for ensuring that pyrethroid pesticides discharges to surface water and groundwater, including discharges of pesticides used as alternatives to pyrethroid pesticides, do not cause or contribute to exceedance of applicable water quality objectives.

4. **Implementation Schedules**

a. *Water Bodies Named in Table III-2A with Known Pyrethroid Pesticides Impairments*

For water bodies specifically named in Table III-2A with known pyrethroid pesticides impairments, attainment of the pyrethroid pesticides water quality objectives and total maximum daily load allocations shall be as soon as practicable. The Regional Water Board shall establish time schedules in waste discharge requirements or waivers in accordance with existing laws and policies that require reductions in discharge concentrations in order to attain the water quality objectives and allocations. Where no existing law, policy, or permit provision directs the length of the compliance schedule, discharges shall be reduced to ensure attainment of the proposed water quality objectives and allocations no later than [10 years from the effective date of this amendment].

The Regional Water Board shall ensure that discharges of pyrethroid pesticides are controlled so that the pyrethroid pesticides water quality objectives and total maximum daily load allocations are attained by modifying existing waste discharge requirements and existing waivers (where necessary provisions are not already in place), by adopting new waste discharge requirements or waivers, or by enforcing the pyrethroid pesticides discharge prohibition. If necessary to ensure attainment of water quality objectives and allocations where known impairments exist as of [effective date of this amendment], the Regional Water Board will ensure that existing waste discharge requirements and waivers will be modified no later than [7 years from the effective date of this Amendment].

b. *Future Exceedances of Pyrethroid Pesticides Water Quality Objectives*

If there is an exceedance of the pyrethroid pesticides water quality objectives after [effective date of this amendment], pyrethroid pesticides in discharges must be reduced so that water quality objectives are attained as soon as practicable. The Regional Water Board shall establish time schedules in waste discharge requirements or waivers when necessary that require reductions in discharge concentrations so that water quality objectives are attained according to the timeframes described in provisions 8, 9 and 10 of this section.

5. **Total Maximum Daily Loads for Pyrethroids in the Water Bodies listed in Table X**

The loading capacity for each water body segment listed in Table X is equal to the numeric targets given below. Wasteload allocations equal to the numeric targets given below are assigned to all permitted municipal separate storm sewer systems (MS4's) that discharge to Table X water bodies.

The following TMDL numeric targets are used to ascertain if water quality objectives are achieved and beneficial uses are protected.

- a. Pyrethroid Pesticides Water Column Additivity Numeric Target
Pyrethroid pesticides have additive toxicity, thus to protect beneficial uses, additive toxicity must be considered in the TMDL as a numeric target. The numeric target for pyrethroid pesticides in the water column is equal to the additivity equation given in the pyrethroid pesticides water quality objectives in Table III-2A.
- b. Sediment Toxicity Numeric Target
The sediment toxicity numeric target is the evaluation of the narrative toxicity water quality objective for Toxicity in the Basin Plan (III-8.01-9.00) using standard aquatic toxicity tests to determine toxicity in bed sediments. The toxic determination is based on comparison of the test organism's response to the sample and a control. The following standard aquatic toxicity test in Table Y will be used to determine compliance with the sediment toxicity numeric target:

Table Y.

<u>Parameter</u>	<u>Test</u>	<u>Biological Endpoint Assessed</u>
<u>Sediment Toxicity</u>	<u><i>Hyalella azteca</i> (10-day)</u>	<u>Survival</u>

- 6. The pyrethroid pesticides water quality objectives represent maximum allowable concentrations. The Regional Water Board shall require additional reductions in pyrethroid pesticides concentrations and exceedance frequencies if such reductions are necessary to account for additive or synergistic effects with other chemicals or to protect beneficial uses.
- 7. The Regional Water Board intends to review the pyrethroid pesticides allocations and implementation provisions of the Basin Plan no later than [8 years from the effective date of this amendment.]
- 8. **Municipal Storm Water Discharges**
 - a. Implementation Program to Attain of Water Quality Objectives

All MS4 NPDES permits shall require implementation of best management practices (BMPs) and control measures to reduce pyrethroid pesticides in urban runoff to the maximum extent practicable in order to attain the pyrethroid pesticides water quality objectives. The responsibilities of the MS4 permittees for reducing attaining the pyrethroid pesticides water quality objectives in urban runoff will be satisfied by implementing BMPs the best management practices listed below (in 8c) and complying with permit-related requirements based on them. The BMPs and control measures listed below (in 8c) shall be considered for inclusion in a discharger's MS4 NPDES permit. In considering BMPs, a municipal storm water discharger must provide documentation to the Board regarding each BMP listed below, and may also identify other practices. At a minimum, at least one education and outreach activity and one pesticide pollution prevention activity shall be implemented. BMPs may be implemented by individual urban runoff management entities, jointly by two or more entities acting in concert, or cooperatively through a regional or statewide approach, including with domestic or municipal wastewater dischargers, as appropriate. Requirements in each MS4 NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pyrethroid pesticides in urban runoff. These requirements shall be included in permits no later than [7 years from the effective date of this Amendment]. If these requirements prove inadequate to meet the water quality objectives, the Regional Board will require additional control measures and/or call for additional actions by other agencies until the objectives are attained.

b. Total Maximum Daily Loads

MS4 permittees assigned wasteload allocations shall attain the wasteload allocations by implementing best management practices listed below (in 8c) to the maximum extent practicable. Applicable MS4 NPDES permits shall require implementation of BMPs and control measures to reduce pyrethroid pesticides in urban runoff to the maximum extent practicable. The BMPs and control measures listed below (in 8c) shall be considered for inclusion in a discharger's MS4 NPDES permit. In considering BMPs, a municipal storm water discharger must provide documentation to the Board regarding each BMP listed below, and may also identify other practices. At a minimum, at least one education and outreach activity and one pesticide pollution prevention activity shall be implemented. BMPs may be implemented by individual urban runoff management entities, jointly by two or more entities acting in concert, or cooperatively through a regional or statewide approach, including with domestic or municipal wastewater dischargers, as appropriate. Requirements in each MS4 NPDES permit issued or reissued and applicable

for the term of the permit shall be based on an updated assessment of control measures intended to reduce pyrethroid pesticides in urban runoff. These requirements shall be included in permits no later than [7 years from the effective date of this Amendment].

c. Best Management Practices

The following BMPs shall be considered by municipal storm water dischargers and implemented as appropriate. Other practices may also be proposed.

Education and outreach activities

- 1) Undertake targeted outreach programs to encourage communities within a discharger's jurisdiction to reduce their reliance on pesticides that threaten water quality, focusing efforts on those most likely to use pesticides that threaten water quality;
- 2) Work with DPR, County Agricultural Commissioners, and the University of California Statewide Integrated Pest Management Program to coordinate education and outreach programs to minimize pesticide discharges.
- 3) Encourage public and private landscape irrigation management that minimizes pesticide runoff;
- 4) Facilitate appropriate pesticide waste disposal, and conduct education and outreach to promote appropriate disposal.

Pesticide pollution prevention activities

- 1) Reduce reliance on pyrethroids and other pesticides that threaten water quality by adopting and implementing policies, procedures, or ordinances that minimize the use of pesticides that threaten water quality in the discharger's operations and on the discharger's property;
- 2) Track progress by periodically reviewing the discharger's pesticide use and pesticide use by its hired contractors;
- 3) Train the discharger's employees to use integrated pest management techniques and require that they adhere to integrated pest management practices to the maximum extent practicable;
- 4) Require the discharger's contractors to practice integrated pest management;
- 5) Study the effectiveness of the control measures implemented, evaluate attainment of the wasteload allocations or water quality objectives, identify effective actions to be taken in the future, and report conclusions to the Regional Water Board;
- 6) Track USEPA and DPR pesticide evaluation and registration activities as they relate to surface water quality and encourage these agencies to

accommodate urban water quality concerns within their pesticide registration processes;

- 7) Assemble and submit information (such as monitoring data) to USEPA and DPR during public comment periods as needed to assist in their pesticide evaluation and registration activities and in ensuring that pesticide applications within the Basin comply with water quality standards; and
- 8) Report violations of pesticide regulations (e.g., illegal handling) to County Agricultural Commissioners.

The following general requirements shall be implemented through MS4 NPDES permits issued or reissued for urban runoff discharges:

- 1) Reduce reliance on pyrethroids and other pesticides that threaten water quality by adopting and implementing policies, procedures, or ordinances that minimize the use of pesticides that threaten water quality in the discharger's operations and on the discharger's property;
- 2) Track progress by periodically reviewing the discharger's pesticide use and pesticide use by its hired contractors;
- 3) Train the discharger's employees to use integrated pest management techniques and require that they adhere to integrated pest management practices to the maximum extent practicable;
- 4) Require the discharger's contractors to practice integrated pest management; and
- 5) Study the effectiveness of the control measures implemented, evaluate attainment of the wasteload allocations, identify effective actions to be taken in the future, and report conclusions to the Regional Board.

The following education and outreach requirements shall also be implemented through MS4 NPDES permits issued or reissued for urban runoff discharges:

- 1) Undertake targeted outreach programs to encourage communities within a discharger's jurisdiction to reduce their reliance on pesticides that threaten water quality, focusing efforts on those most likely to use pesticides that threaten water quality;
- 2) Work with DPR, County Agricultural Commissioners, and the University of California Statewide Integrated Pest Management Program to coordinate education and outreach programs to minimize pesticide discharges.
- 3) Encourage public and private landscape irrigation management that minimizes pesticide runoff; and
- 4) Facilitate appropriate pesticide waste disposal, and conduct education and outreach to promote appropriate disposal.

The following requirements related to regulatory programs shall also be implemented through MS4 NPDES permits issued or reissued for urban runoff discharges:

- 1) Track U.S. EPA and DPR pesticide evaluation and registration activities as they relate to surface water quality and encourage these agencies to accommodate urban water quality concerns within their pesticide registration processes;
- 2) Assemble and submit information (such as monitoring data) to U.S. EPA and DPR during public comment periods as needed to assist in their pesticide evaluation and registration activities and in ensuring that pesticide applications within the Basin comply with water quality standards; and
- 3) Report violations of pesticide regulations (e.g., illegal handling) to County Agricultural Commissioners.

The actions above may be implemented by individual urban runoff management entities, jointly by two or more entities acting in concert, or cooperatively through a regional or statewide approach, as appropriate.

9. Agricultural Discharges

a. Waters Bodies with Known Pyrethroid Pesticides Impairments

Discharges of pyrethroid pesticides to water bodies with known pyrethroid pesticides impairments due to agricultural runoff will be controlled using existing Regional Water Board regulatory programs. Unless a management plan addressing pyrethroid pesticides already exists for the water bodies specifically named in Table III-2A, the Executive Officer will require agricultural dischargers to those water bodies to submit a management plan (or modification of an existing management plan) for the control of pyrethroid pesticide discharges to those water bodies no later than [60 days from the effective date of this amendment]. The management plan shall describe the actions that the discharger will take to reduce pyrethroid pesticides discharges to attain the water quality objectives by the required compliance date.

At a minimum, management plans must describe:

- 1) The sources of pyrethroid pesticides causing nonattainment of the water quality objective;
- 2) The actions that the discharger will take to reduce pyrethroid pesticides discharges and meet the water quality objectives as soon as practicable, but no later than 10 years from [the effective date of this amendment];

- 3) A schedule for the implementation of those actions;
- 4) A monitoring plan to track effectiveness of pollution control practices;
- 5) The process for revising the management plan if the actions do not effectively reduce pyrethroid pesticides discharges or the implemented actions have water quality impacts that must be addressed.

The Executive Officer may allow individual dischargers or a discharger group or coalition to submit management plans. The management plan must comply with the provisions of any applicable waste discharge requirements or conditional waiver of waste discharge requirements. Management plans may address discharges to multiple downstream water bodies for which discharge reductions are required. Management plans may include actions required by state and federal regulations. The Executive Officer may require revisions to the management plan if applicable water quality objectives are not attained. If a water body that is not attaining the pyrethroid pesticides objectives is being used by the discharger to represent water quality conditions in multiple water bodies, the Executive Officer shall require the submittal of a management plan that addresses pyrethroid pesticides in all of the represented water bodies.

- b. Future Exceedances of the Pyrethroid Pesticides Water Quality Objectives*
The following requirement applies to agricultural dischargers that are governed by a Regional Water Board order that does not include management plan submittal requirements triggered by exceedances of water quality objectives. After [effective date of amendment], if the Executive Officer determines that an Table III-2A applicable water body (Table III-2A) is not attaining the pyrethroid pesticides water quality objectives, the Executive Officer shall require dischargers of pyrethroid pesticides to that water body to submit a management plan. Management plans are due no later than 6 months after the discharger receives notification that such a determination has been made.

10. Municipal and Domestic Wastewater Discharges

- a. Municipal and domestic wastewater NPDES permittees found to have reasonable potential based on the additive pyrethroid pesticides water quality objectives shall be required to implement best management practices and control measures to reduce discharges of pyrethroid pesticides as the associated effluent limitation. In these cases, the best management practices and control measures listed below (in 9b) shall be included in a discharger's Pollution Prevention Plan for pyrethroid pesticides. Permittees' responsibilities for addressing a pyrethroid pesticide effluent limitation will be satisfied

through the implementation of BMPs. The BMPs and control measures listed below (in 10b) shall be considered for inclusion in a discharger's Pollution Prevention Plan. In considering BMPs for pyrethroids, a domestic or municipal wastewater discharger has the discretion to implement any of the practices listed below, or may identify others that are not included here, but must provide documentation to the Board regarding their consideration of each BMP listed below. At a minimum, at least one education and outreach activity and one pesticide pollution prevention activity shall be implemented. BMPs may be implemented by individual NPDES permittees, jointly by two or more permittees acting in concert, cooperatively through a regional or statewide approach, including with municipal storm water dischargers, as appropriate. Requirements in each NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pyrethroid pesticides in wastewater effluents.

b. Best Management Practices

The following BMPs shall be considered by municipal and domestic wastewater dischargers and implemented as appropriate. Other practices may also be proposed.

Education and outreach activities

- 1) Undertake targeted outreach programs to encourage communities within a discharger's jurisdiction to reduce their reliance on pesticides that threaten water quality via municipal and domestic wastewater discharges, focusing efforts on those most likely to use pesticides that threaten water quality;
- 2) Encourage public and private pest management practices that minimize pesticides from entering sewer systems and coordinate education and outreach programs to minimize pesticide discharges with the DPR, County Agricultural Commissioners, the University of California Statewide Integrated Pest Management Program, or other entities as appropriate;
- 3) Facilitate appropriate pesticide waste disposal, and conduct education and outreach to promote appropriate disposal.

Pesticide pollution prevention activities

- 1) Reduce reliance on pyrethroids and other pesticides that threaten water quality by adopting and implementing policies, procedures, or ordinances that minimize the use of pesticides that threaten water quality in the discharger's operations and on the discharger's property;
- 2) Track progress by periodically reviewing the discharger's pesticide use and pesticide use by its hired contractors;

- 3) Train the discharger's employees to use integrated pest management techniques and require that they adhere to integrated pest management practices;
- 4) Require the discharger's contractors to practice integrated pest management;
- 5) Study the effectiveness of the control measures implemented, evaluate influent and effluent concentrations, identify effective actions to be taken in the future, and report conclusions to the Regional Water Board;
- 6) Track USEPA and DPR pesticide evaluation and registration activities as they relate to surface water quality and municipal and domestic wastewater discharges and encourage these agencies to accommodate water quality concerns within their pesticide registration processes. This may include assembling and submitting available information (such as monitoring data) to USEPA and DPR during public comment periods to assist in their pesticide evaluation and registration activities. This best management practice would be implemented most effectively through a cooperative regional or statewide approach.

The following general requirements shall be implemented through NPDES permits issued or reissued for wastewater discharges:

- 1) Reduce reliance on pyrethroids and other pesticides that threaten water quality by adopting and implementing policies, procedures, or ordinances that minimize the use of pesticides that threaten water quality in the discharger's operations and on the discharger's property;
- 2) Track progress by periodically reviewing the discharger's pesticide use and pesticide use by its hired contractors;
- 3) Train the discharger's employees to use integrated pest management techniques and require that they rigorously adhere to integrated pest management practices;
- 4) Require the discharger's contractors to practice integrated pest management; and
- 5) Study the effectiveness of the control measures implemented, evaluate attainment of the water quality objectives, identify effective actions to be taken in the future, and report conclusions to the Regional Board.

The following education and outreach requirements shall also be implemented through NPDES permits issued or reissued for wastewater discharges:

- 1) Undertake targeted outreach programs to encourage communities within a discharger's jurisdiction to reduce their reliance on pesticides that threaten

water quality, focusing efforts on those most likely to use pesticides that threaten water quality;

- 2) Work with the DPR, County Agricultural Commissioners, and the University of California Statewide Integrated Pest Management Program to coordinate education and outreach programs to minimize pesticide discharges;
- 3) Encourage public and private pest management practices that minimize pesticides from entering sewer systems; and
- 4) Facilitate appropriate pesticide waste disposal, and conduct education and outreach to promote appropriate disposal.

The following requirements related to regulatory programs shall also be implemented through NPDES permits issued or reissued for wastewater discharges:

- 1) Track U.S. EPA and DPR pesticide evaluation and registration activities as they relate to surface water quality and encourage these agencies to accommodate water quality concerns within their pesticide registration processes;
- 2) Assemble and submit information (such as monitoring data) to U.S. EPA and DPR during public comment periods as needed to assist in their pesticide evaluation and registration activities and in ensuring that pesticide applications within the Basin comply with water quality standards; and
- 3) Report violations of pesticide regulations (e.g., illegal handling) to County Agricultural Commissioners.

The actions above may be implemented by individual NPDES permittees, jointly by two or more permittees acting in concert, or cooperatively through a regional or statewide approach, as appropriate.

11. Vector Control Discharges

Discharges of pyrethroid pesticides from vector control applications are subject to the *Statewide NPDES Permit for Biological and Residual Pesticide Discharges to waters of the United States from Vector Control Applications*. Vector control dischargers are not subject to any additional implementation provisions for attainment of the pyrethroid pesticides water quality objectives or TMDLs.

Add the following Table in the section “Pyrethroid Pesticides Discharges”

Table X. Water Body Segments with Total Maximum Daily Loads (TMDLs) for Pyrethroid Pesticides

<u>Water Body Segment</u>
<u>Arcade Creek</u>
<u>Chicken Ranch Slough</u>
<u>Curry Creek (Placer and Sutter Counties)</u>
<u>Elder Creek</u>
<u>Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County)</u>
<u>Morrison Creek</u>
<u>Pleasant Grove Creek (upstream of Fiddymont Road)</u>
<u>Pleasant Grove Creek, South Branch</u>
<u>Strong Ranch Slough</u>

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Under “**Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing**” (p. IV-38.00-39.00)

Add the following subheading and text:

Pyrethroid pesticides discharges into Sacramento River and San Joaquin River basin waters

Placeholder for cost analysis.

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Changes to Chapter V, Surveillance and Monitoring

Add the following subheading and text:

Pyrethroid Pesticides Discharges

The Regional Water Board will require pyrethroid pesticides dischargers to provide information to the Board. This information may come from the dischargers' monitoring efforts; monitoring programs conducted by state or federal agencies or collaborative watershed efforts; or from special studies that evaluate the effectiveness of management practices. If reliable commercial methods are available with reporting limits at or below the pyrethroid pesticides water quality objective concentrations in the matrix being monitored, those methods shall be considered by dischargers for monitoring of pyrethroid pesticides. The chemical analysis method shall be approved by the Executive Officer before the data can be used to meet the monitoring requirements of this section begins.

Municipal Storm Water

With Executive Officer approval, representative monitoring programs, including coordinated regional monitoring programs, may be used to meet the monitoring requirements. Routine monitoring for pyrethroid pesticides and alternatives can be discontinued upon a discharger showing that the specific pesticide is not found in receiving waters at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives; however, pyrethroid pesticides concentrations shall be assessed during permit renewal at least as long as the pyrethroid pesticides specified in Table III-2A have registered outdoor uses in the source area.

The monitoring and reporting program for any waste discharge requirements that addresses municipal storm water discharges to Table X or Table III-2A applicable water bodies (Table III-2A) shall be designed to collect information necessary to:

- 1) Determine whether receiving waters are attaining the pyrethroid pesticides water quality objectives, and where applicable, the Pyrethroid Pesticides Water Column Additivity Numeric Targets;
- 2) Determine whether bed sediments are attaining the Sediment Toxicity Numeric Targets, where applicable. In order to link sediment toxicity to pyrethroid pesticides, chemical analysis of the sediment for pyrethroid pesticides shall be performed if the sediment is toxic;

- 3) Determine whether the implementation of best management practices and control measures are sufficient to meet the pyrethroid pesticides water quality objectives and TMDL Numeric Targets, where applicable;
- 4) Determine whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives. The Regional Board, in consultation with DPR, will assist dischargers in determining if monitoring and reporting programs for alternatives to pyrethroid pesticides are necessary and in identifying alternatives for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods.

With Executive Officer approval, representative monitoring programs, including coordinated regional monitoring programs, may be used to meet the monitoring requirements. Routine monitoring for pyrethroid pesticides and alternatives can be discontinued upon a discharger showing that the specific pesticide is not found in receiving waters at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives; however, pyrethroid pesticides concentrations shall be assessed during permit renewal at least as long as the pyrethroid pesticides specified in Table III-2A have registered outdoor uses in the source area.

- 1) Determine whether receiving waters are attaining the pyrethroid pesticides water quality objectives;
- 2) Determine whether the implementation of best management practices and control measures are sufficient to meet the pyrethroid pesticides water quality objectives;
- 3) With the assistance of the Regional Water Board and DPR, determine if monitoring and reporting programs for alternatives to pyrethroid pesticides are necessary and identify alternatives for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods. If an alternative pesticide is identified as appropriate for monitoring, monitoring shall be performed by discharger to determine whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives.

The monitoring and reporting program for any waste discharge requirements that addresses municipal storm water discharges to TMDL water bodies (Table X) shall be designed to collect information necessary to:

- 1) Determine whether receiving waters are attaining the Pyrethroid Pesticides Water Column Additivity Numeric Targets;
- 2) Determine whether bed sediments are attaining the Sediment Toxicity Numeric Targets. In order to link sediment toxicity to pyrethroid pesticides, chemical analysis of the sediment for pyrethroid pesticides shall be performed if the sediment is toxic;
- 3) Determine whether the implementation of best management practices and control measures are sufficient to attain the TMDL Allocations and Numeric Targets.

Discharges from Agricultural Operations

Representative monitoring may be used to determine attainment of the water quality objectives. Monitoring shall be representative of water bodies specifically named in Table III-2A, either directly or through a representative monitoring program. Changes in monitoring frequency may result if information such as pesticide use data, pesticide registration status, management practices, runoff potential, or other monitoring studies indicates additional or less monitoring is needed to meet the monitoring requirements, which may include discontinuation of pyrethroid pesticides monitoring.

The monitoring and reporting program for any waste discharge requirements or conditional waiver of waste discharge requirements that addresses agricultural pyrethroid pesticides discharges to water bodies specifically named in Table III-2A shall be designed to collect information necessary to:

- 1) Determine whether receiving waters are attaining the pyrethroid pesticides water quality objectives, where applicable;
- 2) Determine whether bed sediments are attaining the narrative toxicity objective as it relates to pyrethroid pesticides. It is generally expected that this requirement would be met by sediment toxicity testing with *Hyaella azteca* and chemical analysis of the sediment for pyrethroid pesticides if the sediment is toxic;
- 3) Determine the extent of implementation of management practices to reduce off-site movement of pyrethroid pesticides and whether these practices are sufficient to attain the pyrethroid pesticides water quality objectives;
- 4) Determine whether alternatives to pyrethroid pesticides are being discharged at concentrations that have the potential to cause or contribute to exceedances of applicable water quality objectives.

Representative monitoring may be used to determine attainment of the water quality objectives. Monitoring shall be representative of water bodies specifically named in Table III-2A, either directly or through a representative monitoring program. Changes in monitoring frequency may result if information such as pesticide use data, pesticide registration status, management practices, runoff potential, or other monitoring studies indicates additional or less monitoring is needed to meet the monitoring requirements, which may include discontinuation of pyrethroid pesticides monitoring.

Municipal and Domestic Wastewater

With Executive Officer approval, representative monitoring programs, including coordinated regional monitoring programs, may be used to meet the monitoring requirements. Routine monitoring for pyrethroid pesticides and alternatives can be discontinued upon a discharger showing that the specific pesticide is not found in the effluent at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives, except the requirement to monitor for pyrethroid pesticides once per permit cycle will continue to be required, at least as long as pyrethroid pesticides specified in Table III-2A are registered for use in the collection service area.

The monitoring and reporting program for any waste discharge requirements that addresses municipal or domestic wastewater discharges to Table III-2A applicable water bodies (Table III-2A) shall be designed to collect information necessary to:

- 1) Determine whether the discharge causes or contributes to an exceedance of the pyrethroid pesticides water quality objectives, where applicable;
- 2) Determine whether the implementation of best management practices and control measures are sufficient to meet the pyrethroid pesticides water quality objectives;
- 3) With the assistance of the Regional Water Board and DPR, determine if monitoring and reporting for alternatives to pyrethroid pesticides is necessary and identify alternatives for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods. If an alternative pesticide is identified as appropriate for monitoring, monitoring shall be performed by discharger to determine whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives.
- 2) Determine whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives. The Regional Board, in consultation with DPR, will assist

dischargers in determining if monitoring and reporting programs for alternatives to pyrethroid pesticides are necessary and identifying alternatives for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods.

With Executive Officer approval, representative monitoring programs, including coordinated regional monitoring programs, may be used to meet the monitoring requirements. Routine monitoring for pyrethroid pesticides and alternatives can be discontinued upon a discharger showing that the specific pesticide is not found in the effluent at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives; however, the requirement to monitor for pyrethroid pesticides every 5 years as a part of the Report of Waste Discharge will continue to be required, at least as long as pyrethroid pesticides specified in Table III-2A are registered for use in the source area.

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